

WHAT IS CLAIMED IS:

1. A heat-resistant glass fiber which has a composition comprising, substantially by weight %, 56 to 58.5 % of  $\text{SiO}_2$ , 12 to 17 % of  $\text{Al}_2\text{O}_3$ , 16 to 27 % of  $\text{CaO}$ , 1 to 9 % of  $\text{MgO}$ , 0 to 1 % of  $\text{Na}_2\text{O}$  and 0 to 1 % of  $\text{K}_2\text{O}$  as the entirety of the fiber and containing neither  $\text{B}_2\text{O}_3$  nor  $\text{F}_2$ , and which has a surface layer portion made of a silicic glass having an  $\text{SiO}_2$  content of at least 90 % by weight.
2. The heat-resistant glass fiber of claim 1, wherein the surface layer portion made of a silicic glass having an  $\text{SiO}_2$  content of at least 90 % by weight has a thickness of 0.1 to 1.0  $\mu\text{m}$ .
3. The heat-resistant glass fiber of claim 1, wherein a difference  $\Delta T$  between a spinning temperature which is a melting temperature of a glass having a viscosity of 100 Pa·s and a liquidus temperature is at least 30°C.
4. A process for the production of the heat-resistant glass fiber recited in claim 1, which comprises treating the surface of a glass fiber which has a composition comprising, by weight %, 56 to 58.5 % of  $\text{SiO}_2$ , 12 to 17 % of  $\text{Al}_2\text{O}_3$ , 16 to 27 % of  $\text{CaO}$ , 1 to 9 % of  $\text{MgO}$ , 0 to 1 % of  $\text{Na}_2\text{O}$  and 0 to 1 % of  $\text{K}_2\text{O}$  and containing neither  $\text{B}_2\text{O}_3$  nor  $\text{F}_2$ , with a mineral acid.
5. The process of claim 4, wherein the treatment is carried out by immersing the glass fiber in an aqueous solution containing, as the mineral acid, 1 to 10 % by weight of at least one acid selected from  $\text{HCl}$ ,  $\text{H}_2\text{SO}_4$  or  $\text{HNO}_3$  at a temperature of 0 to 90°C.